

Hot-In-Place Recycling: One tool in our tool box.



Spring, 2004

What is HIP?

- ☛ HIP is a process that consists of heating the existing asphalt to soften it, scarifying the softened asphalt, adding rejuvenator and virgin material, mixing and compacting to provide a finished surface.
- ☛ An overlay may or may not be added after HIP treatment.

Special Considerations

- ☛ Long paving train.
- ☛ Significant mobilization effort.
- ☛ Limited but some ability to modify the surface gradation.
- ☛ Rejuvenator needed because asphalt surface is aged, dry and brittle.

Selection Criterion

- ☛ Project length of 7 miles or more.
- ☛ Adequate pavement width (at least 22' with at least 3' of stable shoulders on each side).
- ☛ Relatively uniform pavement with limited patching.
- ☛ Adequate pavement strength for future loads.

Selection Criterion (continued)

- ☛ Need location(s) to “park the train” overnight.
- ☛ Little or no stripping in existing pavement.
- ☛ No more than light, shallow structural distress (alligator cracking).
- ☛ Need to evaluate site regarding alignment and utility issues.

Typical HIP “train”



Another View of HIP Operation



Broader View of Train



Another View



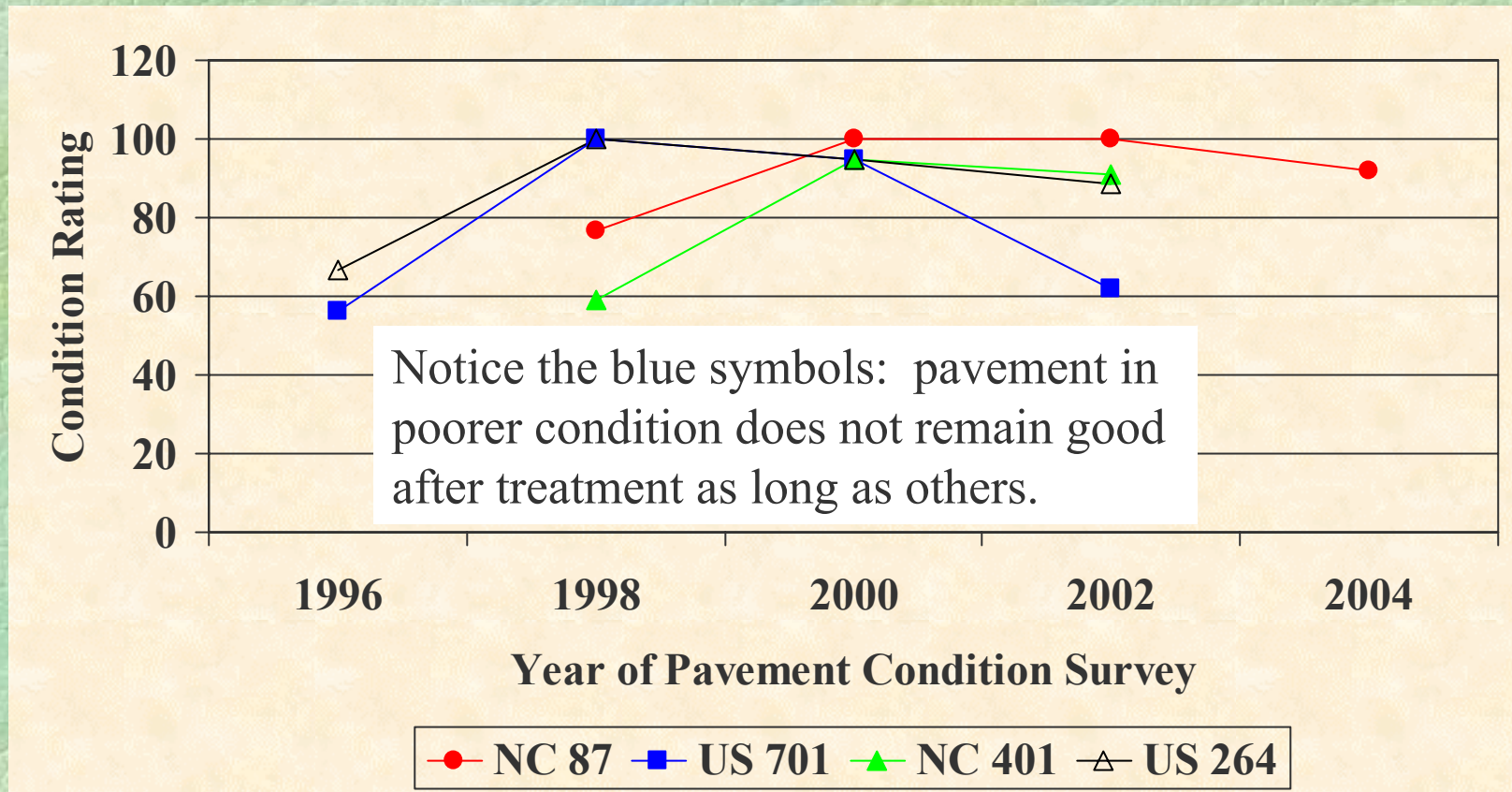
A view of the finished product:



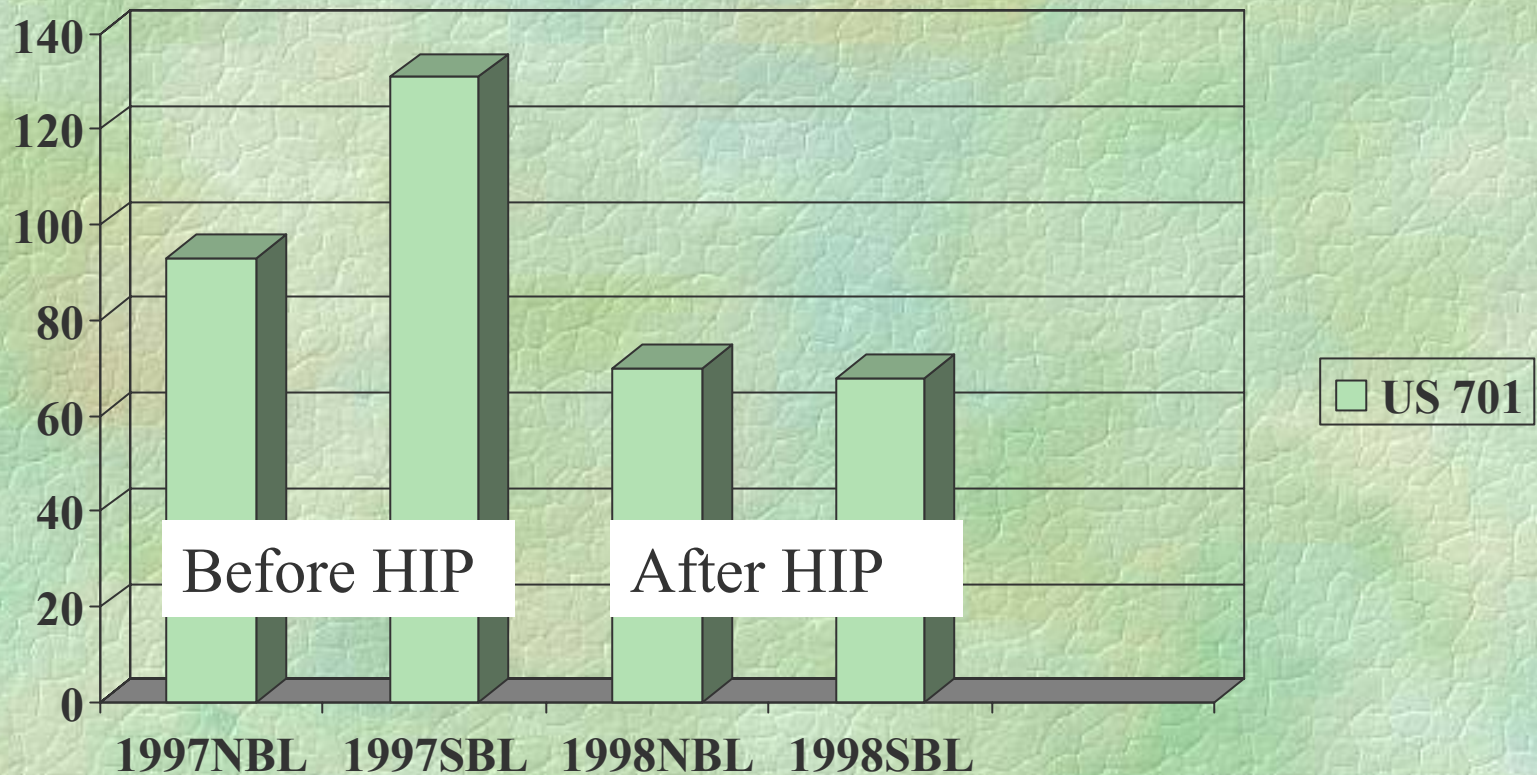
When is HIP Ideal?

- ☞ To address normal wear
- ☞ To address environmental defects like block cracking or transverse cracking and oxidation.
- ☞ To provide a smooth riding surface.

How is HIP Performing? One measure is the Pavement Condition Rating.



IRI is a performance measure of ride quality. $IRI < 100$ is good.



Current or Recent Projects

- ☛ US 70 in Lenoir County
 - ☛ US 70 in Durham County
 - ☛ US 70 in Buncombe County
 - ☛ US 264 in Pitt County
- + others.

How much HIP are we doing?

- ☛ We have recommended HIP in every Division and have built HIP projects in 9 Divisions.
- ☛ Approximate Total Miles to date: 350.

Relative Costs of Tools in our Toolbox (based on NHI 13108)

Crack Seal	Very low
Chip Seal	\$0.95
Slurry Seal	\$0.90
Microsurfacing	\$1.55
1.5" Surface Course	\$3.00
HIP	\$3.40
Mill and Fill (2.5")	\$4.50

Conclusions

- ☛ DOT continues to recommend HIP under carefully monitored selection criterion.
- ☛ Performance has been good; better for pavements that have less cracking when treated. Very smooth ride.
- ☛ The SB 1005 projects were ideal for considering HIP because aimed at Primary routes; generally longer (>5 miles).